77TH CONGRESS } HOUSE OF REPRESENTATIVES { DOCUMENT
1st Session } { No. 286

STILLAGUAMISH RIVER, WASH.

LETTER

FROM

THE SECRETARY OF WAR

TRANSMITTING

A LETTER FROM THE CHIEF OF ENGINEERS, UNITED STATES ARMY, DATED MARCH 20, 1941, SUBMITTING A REPORT, TOGETHER WITH ACCOMPANYING PAPERS AND AN ILLUSTRATION, ON REEXAMINATION OF STILLAGUAMISH RIVER, WASH., REQUESTED BY RESOLUTIONS OF THE COMMITTEE ON RIVERS AND HARBORS, HOUSE OF REPRESENTATIVES, ADOPTED JUNE 6, 1939, AND THE COMMITTEE ON COMMERCE, UNITED STATES SENATE, ADOPTED MAY 24, 1939

JUNE 20, 1941.—Referred to the Committee on Rivers and Harbors and ordered to be printed, with an illustration

WAR DEPARTMENT,
Washington, June 17, 1941.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

DEAR MR. SPEAKER: I am transmitting herewith a report dated March 20, 1941, from the Chief of Engineers, United States Army, on reexamination of Stillaguamish River, Wash., requested by resolutions of the Committee on Rivers and Harbors, House of Representatives, adopted June 6, 1939, and the Committee on Commerce, United States Senate, adopted May 24, 1939, together with accompanying papers and illustration.

The Bureau of the Budget has been consulted and advises that authorization of the project recommended by the Chief of Engineers would not be in accord with the program of the President at this time.

Sincerely yours,

HENRY L. STIMSON,
Secretary of War.

AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
GPO

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF ENGINEERS,
Washington, March 20, 1941.

THE CHAIRMAN, COMMITTEE ON RIVERS AND HARBORS,
House of Representatives, Washington, D. C.

MY DEAR MR. CHAIRMAN: 1. The Committee on Rivers and Harbors of the House of Representatives, by resolution adopted June 6, 1939, requested the Board of Engineers for Rivers and Harbors to review the reports on Stillaguamish River, Wash., submitted in House Document No. 312, Seventieth Congress, first session, with a view to determining if improvement in the interest of navigation is advisable at this time. Under date of May 24, 1939, the Committee on Commerce of the United States Senate requested the Board of Engineers for Rivers and Harbors to review the report on Stillaguamish River, Wash., submitted in House Document No. 312, Seventieth Congress, first session, with a view to determining whether any modification of the recommendation contained therein is advisable at the present time. I enclose the report of the Board in response thereto.

2. After full consideration of the reports secured from the district and division engineers and after affording local interests full opportunity to be heard, the Board recommends improvement of the entrance to Stillaguamish River, Wash., to provide a channel 75 feet wide with the bottom at the elevation of mean lower low water, from Stanwood through South Pass to Port Susan at an estimated first cost of $35,000 with annual maintenance of $10,000.

3. After due consideration of these reports, I concur in the views and recommendations of the Board.

Very truly yours,

J. L. SCHLEY,
Major General,
Chief of Engineers.

REPORT OF THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS

WAR DEPARTMENT,
THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS,
Washington, D. C., January 27, 1941.

Subject: Stillaguamish River, Wash.
To: The Chief of Engineers, United States Army.

1. This report is in response to the following resolutions adopted May 24, 1939, and June 6, 1939, respectively:

Resolved by the Committee on Commerce of the United States Senate, That the Board of Engineers for Rivers and Harbors, created under section 3 of the River and Harbor Act, approved June 13, 1902, be, and is hereby, requested to review the report on Stillaguamish River, Washington, submitted in House Document Numbered 312, Seventieth Congress, first session, with a view to determining whether any modification of the recommendation contained therein is advisable at the present time.

Resolved by the Committee on Rivers and Harbors of the House of Representatives, United States, That the Board of Engineers for Rivers and Harbors created under section 3 of the River and Harbor Act, approved June 13, 1902, be, and is hereby, requested to review the reports on Stillaguamish River, Washington, submitted in House Document Numbered 312, Seventieth Congress, first session, with a view to determining if improvement in the interest of navigation is advisable at this time.

2. The Stillaguamish River is formed from streams which rise in the Cascade Mountains 60 miles south of the international boundary and flows westerly 40 miles to Puget Sound. An island near the mouth divides the stream into two branches, one of which enters Port Susan through Hat Slough and South Pass while the other flows into Skagit Bay through West Pass. The river is tidal to a point 10½ miles above the mouth. Light-draft boats have been using South Pass in going to Stanwood just above the junction of the passes, but shoaling has caused discontinuance of this traffic. No project for improvement of the river has been authorized by Congress, but snagging and some dredging have been performed under the general authority for the improvement of Puget Sound and its tributary waters. The range of tide between mean lower low water and mean higher high water is 11.4 feet.

3. The chief industries of the area tributary to the lower portion of the river, which has a population of 8,000, are agriculture, the canning of milk and vegetables, and the manufacture of lumber. Commerce of the river, exclusive of logs rafted, decreased from 102,600 tons in 1929 to 2,000 tons in 1938. This decrease was due primarily to the discontinuance of the operations of a sawmill at Stanwood.

4. Local interests request dredging of a channel from Stanwood into Puget Sound so that freight boats which previously served the community can resume operations.

5. The district engineer finds the most suitable plan of improvement to be a channel 75 feet wide, with bottom elevation equal to the elevation of mean lower low water, from Stanwood through South Pass of Stillaguamish River to Port Susan. He estimates the initial cost at $35,000 with annual maintenance of $10,000. The estimated annual carrying charge, including maintenance, is $11,500. The annual savings from freight movement by water are estimated at $17,000. The district engineer concludes that the improvement is economically justified and he recommends it. The division engineer concurs.

6. From the information presented the Board of Engineers for Rivers and Harbors was unable to concur in the conclusion that the proposed improvement was warranted at Federal expense. Local interests were so informed and were invited to submit additional data for consideration by the Board. At their request a public hearing was held at which they emphasized their belief that small improvement of the river channel would result in substantial benefits that would be of relatively large importance to the neighborhood and to general commerce.

VIEWS AND RECOMMENDATIONS OF THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS

7. The Board concurs in the views and recommendations of the reporting officers. The improvement will permit movement of small freight vessels at higher water stages and will result in savings in transportation costs sufficient to justify the cost at Federal expense. The Board therefore recommends improvement of the entrance to Stillaguamish River, Wash., to provide a channel 75 feet wide with the

bottom at the elevation of mean lower low water, from Stanwood through South Pass to Port Susan at an estimated first cost of $35,000 with annual maintenance of $10,000.

For the Board:

THOMAS M. ROBINS,
Brigadier General, Corps of Engineers,
Senior Member.

REEXAMINATION OF STILLAGUAMISH RIVER, WASH.

SYLLABUS

The district engineer finds that water-borne freight service on Stillaguamish River has been suspended because of inadequate depths. He recommends a project providing for a channel through South Pass to Stanwood 75 feet wide with bottom at the elevation of mean lower low water, at an estimated cost of $35,000 with $10,000 annually for maintenance.

WAR DEPARTMENT,
UNITED STATES ENGINEER OFFICE,
Seattle, Wash., January 12, 1940.

Subject: Review of reports on Stillaguamish River, Wash.
To: The Division Engineer, North Pacific Division, Portland, Oreg.

1. *Authority.*—This report, with map, is submitted in compliance with departmental instructions dated June 9, 1939 and June 13, 1939, and pursuant to a resolution of the Committee on Commerce of the United States Senate, adopted May 24, 1939, and to a resolution of the Committee on Rivers and Harbors of the House of Representatives, adopted June 6, 1939. The two resolutions read respectively as follows:

Resolved by the Committee on Commerce of the United States Senate, That the Board of Engineers for Rivers and Harbors, created under section 3 of the River and Harbor Act, approved June 13, 1902, be, and is hereby, requested to review the report on Stillaguamish River, Washington, submitted in House Document Numbered 312, Seventieth Congress, First Session, with a view to determining whether any modification of the recommendation contained therein is advisable at the present time.

Resolved by the Committee on Rivers and Harbors of the House of Representatives, United States, That the Board of Engineers for Rivers and Harbors created under section 3 of the River and Harbor Act, approved June 13, 1902, be, and is hereby, requested to review the reports on Stillaguamish River, Washington, submitted in House Document Numbered 312, Seventieth Congress, first session, with a view to determining if improvement in the interest of navigation is advisable at this time.

2. *Reports under review.*—The reports published in House Document No. 312, Seventieth Congress, first session, were authorized by section 4 of the River and Harbor Act approved January 21, 1927. The Chief of Engineers in his report recommended improvement only to the extent that could be accomplished under the existing project for Puget Sound and tributary waters. This work consists of intermittent snagging and clam-shell bucket dredging by a United States Engineer Department snagboat, *W. T. Preston.*

3. *General description.*—The Stillaguamish River is formed by the junction of the north and south forks which rise in the spurs of the Cascade Mountains about 60 miles south of the British Columbia line and flow westerly about 40 miles. The junction, near the town

of Arlington, is about 22 miles above the mouth. Near the mouth the river divides and enters Port Susan through Hat Slough and South Pass and enters Skagit Bay through West Pass. Formerly Douglas Slough also carried some of the discharge into Skagit Bay but this has now been closed. Most of the discharge now passes through Hat Slough. Both Port Susan and Skagit Bay are arms of Puget Sound. Off the mouths are extensive sand flats with only narrow crooked channels through them which cannot be navigated at low tide. The mean range between mean lower low water and mean higher high water at the mouth is 11.4 feet. Light-draft boats use South Pass and West Pass at high tide as a route to Skagit Bay and points north and the former is used by boats going to Stanwood just above the junction of these two passes. The river is navigable for light-draft vessels to Florence 6 miles above the mouth and above that point has been used to a limited extent for floating logs. The tidal effect extends to about the Great Northern Railroad bridge, 10½ miles above the mouth. The forks have a steep fall and are not suited to navigation.

4. The total drainage area is about 690 square miles. Discharge data are available only at some points on the forks. A low-water measurement made in August 1908, gave a discharge near the mouth of 534 second-feet of which 211 second-feet was then passing down Hat Slough.

5. *Tributary area.*—The territory tributary to the lower portion of the river has a population of about 8,000. The chief industries are agriculture and the canning of vegetables. The principal towns are Stanwood, just above the mouth of the river, and East Stanwood, distant about one-half mile on the Great Northern Railroad.

6. *Roads and railways.*—The Vancouver, British Columbia, branch of the Great Northern Railroad from Everett, Wash., enters the valley in the vicinity of Silvana where it crosses the river and follows the north side down to East Stanwood. A branch line of the Northern Pacific Railroad crosses the river near Arlington. The Pacific Highway passes near Stanwood, and county highways afford good communication in the lower valley.

7. *Steamship lines.*—The Skagit River Navigation & Trading Co., operating light-draft steamers engaged in general freighting, formerly called at Stanwood about once a week when practicable, but the service was discontinued in 1939 because of poor channel conditions.

8. *Bridges.*—The only bridge below Stanwood is the Snohomish County highway bridge over the West Pass, about one-half mile below the town. This is a swing drawbridge with horizontal clearance of 100 feet on each side of the draw rest and vertical clearances when closed of 17.9 feet above mean lower low water and 10.2 feet above high water.

9. *Prior reports.*—The reports under review, preliminary examination and survey, "Stillaguamish River, Wash.," were ordered by the River and Harbor Act approved January 21, 1927. The report on preliminary examination was made May 23, 1927, and, on the survey, February 8, 1928, and both are published in House Document No. 312, Seventieth Congress, first session. The Chief of Engineers recom-

mended improvement only to the extent which could be accomplished under the existing project for Puget Sound and tributary waters.

10. *Existing project.*—There is no project for improvement of Stillaguamish River for navigation. Under the general project, Puget Sound and its tributary waters, snagging and a limited amount of dredging is done each year by the snagboat *W. T. Preston.*

11. *Other improvements.*—A flood-control project for the river was adopted June 22, 1936, and provides for the partial control of floods by snagging and bank revetment on the river, by construction of a control at the head of Cook Slough, and of two cut-off channels in Cook Slough with closure of a distributary of Cook Slough. The project is completed.

12. *Terminal and transfer facilities.*—There are five open-pile wharves on the river at Stanwood, three of which are private and two public. The wharf owned by the Skagit River Navigation and Trading Co. has warehouse accommodations for 150 tons and Lien Bros. Packing Co. has wharfage for 3,000 tons. There are no wharfage charges at any of the wharves. Transfer facilities are afforded by eight public carriers. Available facilities are adequate for existing and prospective commerce.

13. *Improvement desired.*—A public hearing was held at Stanwood, Wash., on November 21, 1939, to give local interests the opportunity to state their opinions concerning improvements required on Stillaguamish River in the interest of navigation. It was stated at this hearing that the channel from Stanwood into Puget Sound has shoaled to such an extent that the freight boats serving the community have discontinued service. Any improvement that would permit resumption of this service would satisfy local desires.

14. *Commerce.*—The amount of traffic, excluding logs, on Stillaguamish River dropped from a high of 98,193 tons in 1926 to a low of 2,482 tons in 1934. It then increased steadily to 5,296 tons in 1937 and dropped abruptly to 2,005 tons in 1938. Discontinuance of service by the main carrier in September 1939 is expected to make the total for that year even less than for the preceding year.

15. The nature of the commerce has changed. In 1926 large amounts of lumber, canned milk, oats, and hay, with only 726 tons of canned vegetables were shipped, whereas in 1938 the shipments consisted entirely of 1,533 tons of canned vegetables. The large sawmill that operated at Stanwood in past years has been discontinued, the milk cannery is now occupied by a vegetable cannery, and farmers are turning from growing hay and oats, to growing peas and other vegetables suitable for canning. The canned vegetable business favors water transportation and benefits to be derived from an improved channel would accrue mainly to that industry. Local interests assert that the total bulk freight shipped to and from the tributary area totals 143,154 tons annually, and that 50 percent of this freight would be transported by water if vessels were able to call at Stanwood. They estimate that water transportation would afford an average saving of $0.75 per ton over other transportation services. These figures represent an annual saving of almost $54,000 and are probably unduly optimistic. A study of tariffs and character of receipts and shipments in the Stillaguamish Delta, and of the percentage of waterborne freight to total freight in the adjacent Skagit Delta, leads to

the conclusion that much less than 50 percent of all freight would be carried by water, and that actual savings would be about as follows:

Receipts:	
Carload lots, 1,500 tons, at $1	$1,500
Groceries, etc., 1,200 tons, at $2.50	3,000
Fourth-class freight, 300 tons, at $3	900
Total receipts, 3,000 tons	5,400
Shipments:	
Canned peas:	
Lien Co., 4,300 tons, at $2	8,600
Bozeman Co., 5,000 tons, at 25 cents	1,250
Miscellaneous agricultural products, 2,000 tons, at 75 cents	1,500
Total shipments, 11,300 tons	11,350
Total receipts and shipments, 14,300 tons	16,750

In round figures, then, the savings will be $17,000 annually.

16. The following tables give the comparative statement of traffic from 1929 to 1938, inclusive, and the break-down of freight traffic for 1938:

TABLE I.—*Comparative statement of traffic, Stillaguamish River*

[Section included: Stillaguamish River below Stanwood. Controlling depth: Zero when tide is 3 feet above mean lower low water. Project depth: None specified. Navigation season: Entire year]

Year	Vessel traffic		Rafted		Total	
	Tons	Value	Tons	Value	Tons	Value
1929	102,583	$1,891,795	118,809	$653,449	221,392	$2,545,244
1930	92,302	1,725,047	86,106	344,424	178,408	2,069,471
1931	84,381	1,954,958	68,119	238,416	152,500	2,193,074
1932	47,151	329,628	32,888	115,108	80,039	444,736
1933	5,062	201,877	(1)	(1)	5,062	201,877
1934	2,482	252,709	1,650	7,425	4,132	260,134
1935	4,340	361,875	5,178	20,712	9,518	382,587
1936	5,320	627,800	21,647	97,411	26,967	725,211
1937	5,296	776,082	13,500	72,900	18,796	848,982
1938	2,005	271,401	12,675	63,375	14,680	334,776

[1] None. Sawmills were closed in 1933.

TABLE II.—*Domestic freight traffic, 1938, Stillaguamish River*

Classes and commodities	Tons	Value
Coastwise receipts:		
Sugar	100	$8,000
Logs, rafted	12,675	63,375
Paper cartons	91	5,915
Fuel oil	61	436
Salt	17	255
Tin cans	203	34,510
Total	13,147	112,491
Coastwise shipments: Vegetables, canned	1,533	222,285
Total, coastwise	14,680	334,776

17. *Survey.*—In December 1939 a line of soundings was taken approximately along the center lines of both the South Pass and West Pass Channels. A comparison of the profiles of 1930 and 1939 indicates that the controlling elevation of the river bottom at Stanwood above the head of the passes increased from 2 feet above to 4

feet above mean lower low water in Puget Sound. The controlling elevation in South Pass has increased from plus 3 to plus 5. Shoals were materially longer in 1939 than they had been in 1930. The controlling elevation in West Pass is slightly less than 5 feet. It is interesting to note that because of shoals in the outlets of the river, the plane of mean lower low water at Stanwood, as determined by the United States Coast and Geodetic Survey, is more than 4 feet above mean lower low water in the adjacent water of Puget Sound. The elevations mentioned above refer to the datum in the Sound.

18. *Plan of improvement.*—A reasonably straight channel, 75 feet wide, extending from Stanwood through South Pass to Port Susan, navigable by shallow draft river boats, would satisfy the needs of the community. The material to be removed is largely sand, and most of the channel is exposed to wave action and tidal currents. Silting and reduction of side slopes would necessitate maintenance dredging each year, possibly amounting to approximately 30 percent of the original dredged quantity. Estimates are given in the table below for channels 75 feet wide and of various depths. The quantities include 1 foot of over-depth dredging. The unit price given could be realized only if a small hydraulic pipe-line dredge were available.

Elevation of bottom of channel referred to mean lower low water	−4	−2	0	+2
Dredging, cubic yards	470,000	300,000	160,000	50,000
Cost at $0.20 per cubic yard	$94,000	$60,000	$32,000	$10,000
Engineering and contingencies about 10 percent	10,000	6,000	3,000	1,000
Total first cost	104,000	66,000	35,000	11,000
Estimated annual maintenance	30,000	20,000	10,000	3,000

19. *Vessel traffic.*—Vessel traffic in the Stillaguamish River at the present time is very light and consists almost entirely of small utility boats, fish boats, and pleasure craft with drafts generally less than 4 feet. Freight service, discontinued in September 1939, was formerly carried by the *Skagit Chief*, a steam stern-wheeler 165 feet long, 40-foot beam, 6-foot loaded draft, and 502 gross tons, and the *Stanwood*, a steam screw vessel 59 feet long, 23-foot beam, 6-foot draft and 69 gross tons.

20. *Difficulties attending navigation.*—The channels into Stanwood are narrow, tortuous, and so shallow that they can be navigated only at high tide. Even then, groundings are frequent. Usually no damage is done because of the yielding nature of the ground, but delays incurred thereby vary up to 12 or even 24 hours and are expensive and disrupt schedules. Capacity loads cannot be carried by a boat of 6-foot draft unless the tide is unusually high. Any delay in loading at Stanwood results in loss of the tide used in coming in, and the time lost in waiting for the next high tide results in so much added expense that no profit is realized from the cargo. This condition has resulted in suspension of water-borne commerce.

21. *Discussion.*—A study was made to determine the probable amount of freight that would move by water and the probable savings to shippers if a suitable channel were provided. The conclusion was reached that water-borne tonnage would approximate only 10 percent of the total receipts and shipments, and that savings realized would amount to about $17,000 a year.

22. A channel through South Pass 75 feet wide with bottom at mean lower low water could be provided at a first cost of $35,000, with maintenance estimated at $10,000, and is considered the maximum improvement that could be justified by reasonably prospective benefits. Such a channel would accommodate a vessel of the *Stanwood* class at high tide and would be deeper than the channel that has been navigated more or less successfully by that vessel in past years.

23. There is not sufficient freight to justify the operation between Stanwood and Seattle only, of a boat such as the *Skagit Chief*. If both the South and West Passes were improved, this boat could profitably call at Stanwood on its regular runs between Seattle and Mount Vernon on the Skagit River. It would, however, require a channel at least 150 feet wide. To provide a channel of this width and of sufficient depth to permit the boat to leave the North Fork of the Skagit at high tide—and it cannot leave at any other time—and to call at Stanwood and pick up freight without waiting over for the next high tide, would cost not less than $28,000 annually and could not be justified by the savings that would be effected.

24. It is believed that a channel 75 feet wide with bottom at elevation of mean lower low water could be dredged at a cost of 20 cents per cubic yard, or a total cost of $35,000. The annual cost of maintenance is estimated at $10,000. A study of the tidal curves indicates that such a channel would increase, by more than 4,000 hours each year, the time that vessels requiring depths of 6 feet could operate.

25. The water-borne commerce originating in the Stillaguamish Valley is distributed principally through Seattle for coastwise shipment and for the east coast. Because of this wide distribution the benefits to be derived from the proposed channel should be accepted as having national scope.

26. *Water power and related subjects.*—Improvement of Stillaguamish River for navigation cannot be coordinated with any plans for water power or land reclamation. Flood stages on the lower river would be lowered slightly by deepening at the mouth.

27. *Shoreline changes.*—The project proposed will not affect adjacent shorelines.

28. *Other special subjects.*—Recreational boating and fishing may receive some benefit from an improved channel. Seaplane bases and wildlife conservation problems will not be affected.

29. *Conclusions.*—Water-borne freight service has been suspended on Stillaguamish River because of inadequate channel depths. Shippers of the tributary area are adversely affected because of the higher rates charged by other carriers. The amount of commerce is not great but prospective savings are large enough to justify limited improvement. A channel 75 feet wide with bottom at mean lower low water, extending from Stanwood through South Pass to Port Susan, would provide a better passage than has been available in past years, and could be provided at a cost commensurate with the resulting benefits. As the benefits would be national in scope it is believed that no local cooperation should be required.

30. *Recommendation.*—In view of the foregoing, the district engineer recommends provision of a channel 75 feet wide with the bottom at

mean lower low water from Stanwood through South Pass of Stillaguamish River to Port Susan at a first cost of $35,000 and $10,000 annually thereafter for maintenance.

L. E. ATKINS,
Lieutenant Colonel, Corps of Engineers,
District Engineer.

[First endorsement]

OFFICE, DIVISION ENGINEER,
NORTH PACIFIC DIVISION,
Portland, Oreg., February 15, 1940.

To the CHIEF OF ENGINEERS, UNITED STATES ARMY.

1. I concur in the report and recommendations of the district engineer.

JOHN C. H. LEE,
Colonel, Corps of Engineers,
Division Engineer.

○

WAR DEPARTMENT

CORPS OF ENGINEERS, U.S. ARMY

LOWER STILLAGUAMISH RIVER

Scale in miles 1 0 1

SKAGIT BAY

SKAGIT RIVER DELTA

SO. FK. SKAGIT R.

TOM MOORE SLOUGH

MILLTOWN

SKAGIT COUNTY / SNOHOMISH COUNTY

PILE JETTY

Mean Lower Low Water

DOUGLAS SLOUGH

GREAT NORTHERN RAILWAY

STANWOOD

EAST STANWOOD

CAMANO ISLAND

TO UTSALADDY

WEST PASS

DAVIS SLOUGH

LEQUE ISLAND

SOUTH PASS

PROPOSED IMPROVEMENT

STILLAGUAMISH RIVER

FLORENCE

HAT SLOUGH

Mean Lower Low Water

PORT SUSAN

VICINITY MAP

Scale in miles 10 0 10 20

CANADA

UNITED STATES

BRITISH COLUMBIA

WASHINGTON

GEORGIA STRAIT

Blaine

Bellingham Bay

BELLINGHAM

WHATCOM

NOOKSACK RIVER

MIDDLE FORK

SOUTH FORK

N. FK.

ORCAS ISLAND

SAN JUAN

SAN JUAN I.

Lopez Island

ROSARIO STRAIT

Padilla Bay

Anacortes

Guemes Island

SKAGIT

MOUNT VERNON

La Conner

N. FK.

Skagit Bay

WHIDBEY ISLAND

STANWOOD

NORTH FORK

Coupeville

Camano Island

Port Susan

Silvana

COOK SLOUGH

G.N. RY.

Arlington

STILLAGUAMISH RIVER

SOUTH FORK

Port Townsend

Port Angeles

CLALLAM

ADMIRALTY INLET

Saratoga Passage

S.P.R.R.

Marysville

SNOHOMISH

MOUNTAINS

Possession Sound

EVERETT

Port Ludlow

JEFFERSON

CANAL

SKYKOMISH

SNOQUALMIE

G.N. RY.

PACIFIC HIGHWAY

N.P.R.R.

CASCADE

KITSAP

SEATTLE

Bremerton

Vashon Island

KING

C.M.St.P.&P.R.R.

GREEN RIVER

WHITE RIVER

To Cle Elum

MASON

Hoodsport

TACOMA

PUYALLUP RIVER

To Yakima

PIERCE

OLYMPIA

To Aberdeen

THURSTON

N.P. RY.

McCLEARY

To Portland

LEGEND

Paved or Hard surfaced roads

Improved roads

U.S. Highway numbers shown thus (99)

State Highway numbers shown thus (1E)

With review of reports dated January 12, 1940 directed by resolution of the Committee on Commerce of the United States Senate adopted May 24, 1939, and by resolution of the Committee on Rivers and Harbors of the House of Representatives adopted June 6, 1939.

STILLAGUAMISH RIVER WASHINGTON

In 1 Sheet

Scale: As shown

U.S. Engineer Office, Seattle, Wash. January 12, 1940

Submitted: H.J.M. Baker, Senior Engineer

Approved: L.E. Altheus, Lt. Col., Corps of Engineers

Drawn By: C.D.W.

FILE No. E-2-9-26

HOUSE DOC. NO. 286, 77TH CONG., 1ST SESSION

U. S. GOVERNMENT PRINTING OFFICE : 1941—O-326549